

## CLAIMS

1. In a data communication network, a method for operating a client node,  
said method comprising:

5 formatting an IP packet to include a globally significant IP address identifying a  
realm and a locally significant IP address identifying a destination of said IP packet  
within said realm; and  
transmitting said IP packet.

10 2. The method of claim 1 further comprising:  
resolving said globally significant IP address from a first component of a globally  
significant name; and  
resolving said locally significant IP address from a second component of a locally  
significant name.

15 3. The method of claim 2 wherein resolving said globally significant IP  
address comprises contacting a global DNS server.

20 4. The method of claim 2 wherein resolving said globally significant IP  
address comprises contacting a local DNS server.

5. The method of claim 2 wherein resolving said globally significant IP  
address comprises contacting an SIP server.

6. The method of claim 1 wherein said globally significant IP address belongs to a range specified for realms.

5 7. In a data communication network, a method for operating a gateway node to handle a received packet, said method comprising:

extracting a globally significant destination address from a destination address field of said packet; and

10 if said globally significant destination address identifies a realm directly attached to said gateway node, extracting a locally significant destination address from said packet, placing said locally significant destination address in said destination address field, and forwarding said packet to a local destination within said realm.

8. The method of claim 7 further comprising:

15 if said globally significant destination address does not identify a realm directly attached to said gateway node, forwarding said packet to a next hop based on said globally significant destination address.

9. The method of claim 7 further comprising:

20 advertising a realm reachable through said gateway node.

10. The method of claim 9 wherein advertising comprises:

sending a border gateway protocol message identifying said realm reachable through said gateway node.

11. In a data communication network, a computer program product for operating an IP stack at a client node, said computer program product comprising:

code that formats an IP packet to include a globally significant IP address

5 identifying a realm and a locally significant IP address identifying a destination of said IP packet within said realm;

code that transmits said IP packet; and

a computer-readable storage medium that stores the codes.

10 12. The computer program product of claim 11 further comprising:

code that resolves said globally significant IP address from a first component of a globally significant name; and

code that resolves said locally significant IP address from a second component of a locally significant name.

15 13. The computer program product of claim 12 wherein said code that resolves said globally significant IP address comprises code that contacts a global DNS server.

20 14. The computer program product of claim 12 wherein said code that resolves said globally significant IP address comprises code that contacts a local DNS server.

15. The computer program product of claim 12 wherein said code that resolves said globally significant IP address comprises code that contacts an SIP server.

5 16. The computer program product of claim 11 wherein said globally significant IP address belongs to a range specified for realms.

17. In a data communication network, a computer program product for operating a gateway node to handle a received packet, said computer program product comprising:

10 code that extracts a globally significant destination address from a destination address field of said packet;

code that, if said globally significant destination address identifies a realm directly attached to said gateway node, extracts a locally significant destination address from said packet, placing said locally significant destination address in said destination address field, and forwards said packet to a local destination within said realm; and

15 a computer-readable storage medium that stores the codes.

18. The computer program product of claim 17 further comprising:

20 code that, if said globally significant destination address does not identify a realm directly attached to said gateway node, forwards said packet to a next hop based on said globally significant destination address.

19. The computer program product of claim 17 further comprising:  
code that advertises a realm reachable through said gateway node.

5 20. The computer program product of claim 19 wherein said code that  
advertises comprises:

code that sends a border gateway protocol message identifying said realm  
reachable through said gateway node.

10 21. In a data communication network, apparatus for operating an IP stack at a  
client node, said apparatus comprising:

a processor; and

a memory storing instructions executed by said processor, said instructions  
comprising:

15 code that formats an IP packet to include a globally significant IP address  
identifying a realm and a locally significant IP address identifying a destination of  
said IP packet within said realm; and

code that transmits said IP packet.

20 22. The apparatus of claim 21 wherein said instructions further comprise:  
code that resolves said globally significant IP address from a first component of a  
globally significant name; and

code that resolves said locally significant IP address from a second component of  
a locally significant name.

23. The apparatus of claim 22 wherein said code that resolves said globally significant IP address comprises code that contacts a global DNS server.

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24. The apparatus of claim 22 wherein said code that resolves said globally significant IP address comprises code that contacts a local DNS server.

25. The apparatus of claim 22 wherein said code that resolves said globally significant IP address comprises code that contacts an SIP server.

26. The apparatus of claim 21 wherein said globally significant IP address belongs to a range specified for realms.

27. In a data communication network, apparatus for operating a gateway node to handle a received packet, said apparatus comprising:

a processor; and

a memory that stores instructions executed by said processor, said instructions comprising:

code that extracts a globally significant destination address from a destination address field of said packet; and

code that, if said globally significant destination address identifies a realm directly attached to said gateway node, extracts a locally significant destination address

from said packet, placing said locally significant destination address in said destination address field, and forwards said packet to a local destination within said realm.

5           28.     The apparatus of claim 27 further wherein said instructions further comprise:

code that, if said globally significant destination address does not identify a realm directly attached to said gateway node, forwards said packet to a next hop based on said globally significant destination address.

10           29.     The apparatus of claim 27 wherein said instructions further comprise:  
code that advertises a realm reachable through said gateway node.

15           30.     The apparatus of claim 29 wherein said code that advertises comprises:  
code that sends a border gateway protocol message identifying said realm  
reachable through said gateway node.

20           31.     In a data communication network, apparatus for operating a client node,  
said apparatus comprising:  
means for formatting an IP packet to include a globally significant IP address  
identifying a realm and a locally significant IP address identifying a destination of said IP  
packet within said realm; and  
means for transmitting said IP packet.

